



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,112	07/11/2003	Akira Miyake	1232-5081	4097
27123	7590	07/19/2005	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			KAO, CHIH CHENG G	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/618,112

Applicant(s)

MIYAKE ET AL.

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were received on 4/29/05. These drawings are acceptable.

### ***Claim Objections***

2. Claims 1 and 13 are objected to because of the following informalities, which appear to be minor draft errors creating grammatical and lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following suggestions may overcome their respective objections: (claim 1, lines 5-6, "diffraction lights; second detecting means"; inserting - -and- - before "second detecting means"), (claim 1, line 9, "said second light detecting means"; replacing "said" with - -the- -), (claim 13, line 1, "semiconductor clement"; replacing "clement" with - -element- -) and (claim 13, line 5, "semiconductor clement"; replacing "clement" with - -element- -).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2882

3. Claims 13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 13 and 16, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Terashima et al. (US Patent 5995582).

Terashima et al. discloses an apparatus (title) comprising: a light source for emitting x-rays, soft x-rays, or EUV (fig. 1, #2), an object (fig. 1, #3, 4, or 7), wherein a semiconductor element is manufactured (fig. 1, #7) using the light (fig. 1, #12) emitted from said light source (fig. 1, #2) and coming by way of said object (fig. 1, #3, 4, or 7).

The functional recitation, of an object measured by a measuring device as defined in claim 1, has not been given patentable weight because it is narrative in form. The claimed apparatus comprises a light source and object, not an apparatus comprising a light source, object, and measuring device. The measuring device is not part of the apparatus as claimed.

5. Claims 1, 2, 7, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Saitoh et al. (US Patent 5160848).

6. Regarding claim 1, Saitoh et al. discloses a device (fig. 4a) comprising a diffraction grating (abstract, lines 1-2) for diffracting incident light to resolve the light into a plurality of diffraction lights having different orders (col. 5, lines 60-61), first detecting means for measuring an intensity of light of a predetermined diffraction light of the plurality of diffraction lights (fig. 4a, #38), and second detecting means for measuring an intensity of a diffraction light other than the diffraction light received by said first detecting means (fig. 4a, #39), and being reflected by an object to be measured (fig. 4a, #2), wherein a result of measurement by the second light detecting means is corrected using a result of measurement by said first detecting means (fig. 7).

7. Regarding claim 2, Saitoh et al. further discloses wherein the diffraction light to be detected by said second detecting means is zero-th order diffraction light diffracted by said diffraction grating (col. 6, line 36).

8. Regarding claim 7, Saitoh et al. further discloses wherein said diffraction grating is a plane diffraction grating of laminar type (abstract, lines 1-2, and fig. 4a).

9. Regarding claim 11, Saitoh et al. would necessarily have wherein a change in a result of measurement of said second detecting means due to a change in an intensity of rays emitted from

Art Unit: 2882

a light source and incident on said diffraction grating is compensated using a result of measurement of said first detecting means (figs. 4a and 7) due to the same positional relationship of the detectors if the intensity of rays changes.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. as applied to claim 1 above, and further in view of Hirano (JP 08-145916).

Saitoh et al. discloses a device as recited above.

However, Saitoh et al. does not disclose a spectroscope for making light to be projected into approximately monochromatic light being one of EUV light, soft x-rays, and x-rays.

Hirano teaches a spectroscope for making light to be projected into approximately monochromatic light being one of EUV light, soft x-rays, and x-rays (abstract, constitution).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device of Saitoh et al. with the spectroscope of Hirano, since one would be motivated to make such a modification to optimize analysis (abstract, purpose) as shown by Hirano.

Art Unit: 2882

11. Claims 4-6, 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. as applied to claim 1 above, and further in view of Kitaoka et al. (US Patent 5377009) and Brynzar et al. (SU 1562716).

12. Regarding claims 4 and 5, Saitoh et al. discloses a device as recited above.

However, Saitoh et al. does not disclose a mirror provided between a diffraction grating and detecting means and a condensing cylindrical mirror.

Kitaoka et al. teaches a mirror (fig. 1, #37) provided between a diffraction grating and detecting means (fig. 1, #39). Brynzar et al. teaches a condensing cylindrical mirror (figure, #5 or 6).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device of Saitoh et al. with the mirror of Kitaoka et al., since one would be motivated to make such a modification for more easily distinguishing between different diffracted rays (fig. 1) as implied from Kitaoka et al.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device of Saitoh et al. as modified above with the mirror of Brynzar et al., since one would be motivated to make such a modification to reduce the size of the device (advantage) as shown by Brynzar et al.

13. Regarding claims 6, 12, and 14, Saitoh et al. as modified above suggests a device as recited above. Saitoh et al. further discloses incident light, which would necessarily comprise a

Art Unit: 2882

plurality of different wavelengths due to the characteristics of Xe or Hg lamps (col. 6, lines 50-51).

However, Saitoh et al. does not disclose wherein in a plane containing central axes of incident and reflected light upon and from the condensing mirror, the diffraction grating and detecting means are approximately conjugate with each other with respect to the condensing mirror.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device of Saitoh et al. as modified above with the diffraction grating and detecting means approximately conjugate with each other with respect to the condensing mirror, since rearranging parts of an invention only involves routine skill in the art. One would be motivated to make such a modification for a more compact device.

14. Regarding claim 15, Saitoh et al. further discloses wherein zero-th order diffraction light (col. 6, lines 35-36) emergent from said diffraction grating (abstract, lines 1-2) is directed to said second detecting means (fig. 4a, #39).

15. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saitoh et al. and Hirano as applied to claim 3 above, and further in view of Ichihara (US Patent 6312373).

16. Regarding claim 9, Saitoh et al. as modified above suggests a device as recited above.

However, Saitoh et al. does not disclose a curved-surface reflection mirror between a spectroscope having an exit pupil and diffraction grating.



Art Unit: 2882

Ichihara teaches a curved-surface reflection mirror (fig. 10a, #64) between a spectroscope (col. 11, lines 65-67), which would necessarily have an exit pupil due to the exact shape of the beam (fig. 10a, #84), and diffraction grating (fig. 11a, #62).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device of Saitoh et al. as modified above with the mirror of Ichihara, since one would be motivated to make such a modification for higher performance (col. 3, lines 10-12) as implied from Ichihara.

17. Regarding claim 10, Saitoh et al. as modified above suggests a device as recited above.

However, Saitoh et al. does not disclose wherein in a plane containing central axes of incident and reflected light upon and from the curved-surface reflection mirror, an exit pupil of an spectroscope and diffraction grating are approximately conjugate with each other with respect to a reflection mirror.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the device of Saitoh et al. as modified above with the exit pupil and diffraction grating approximately conjugate with each other with respect to the reflection mirror, since rearranging parts of an invention only involves routine skill in the art. One would be motivated to make such a modification to make the device more compact.

### ***Response to Arguments***

18. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

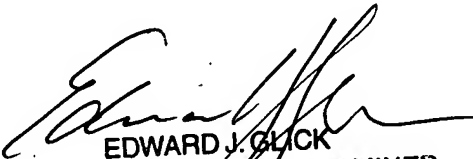
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2882

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gk

  
EDWARD J. CLICK  
SUPERVISORY PATENT EXAMINER

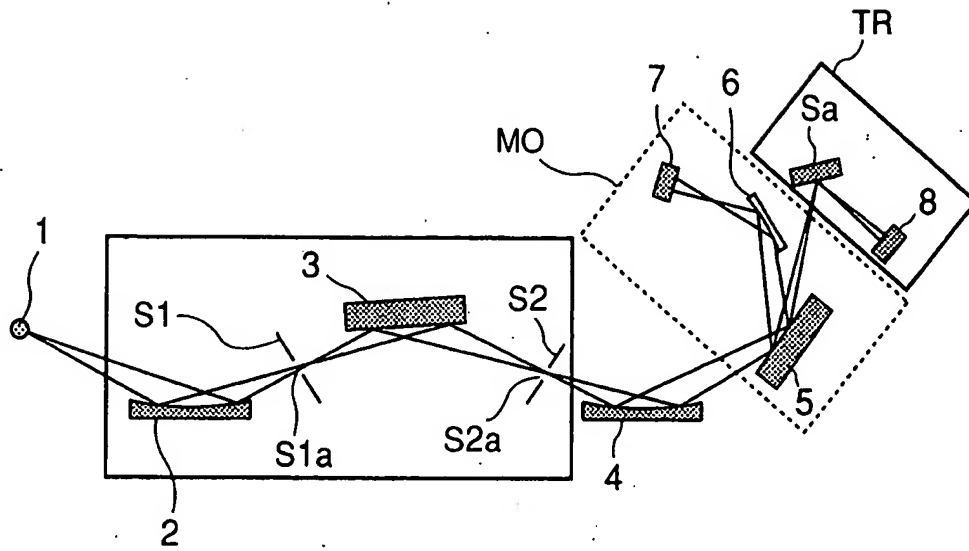


FIG. 1

Approved  
 6/27/05

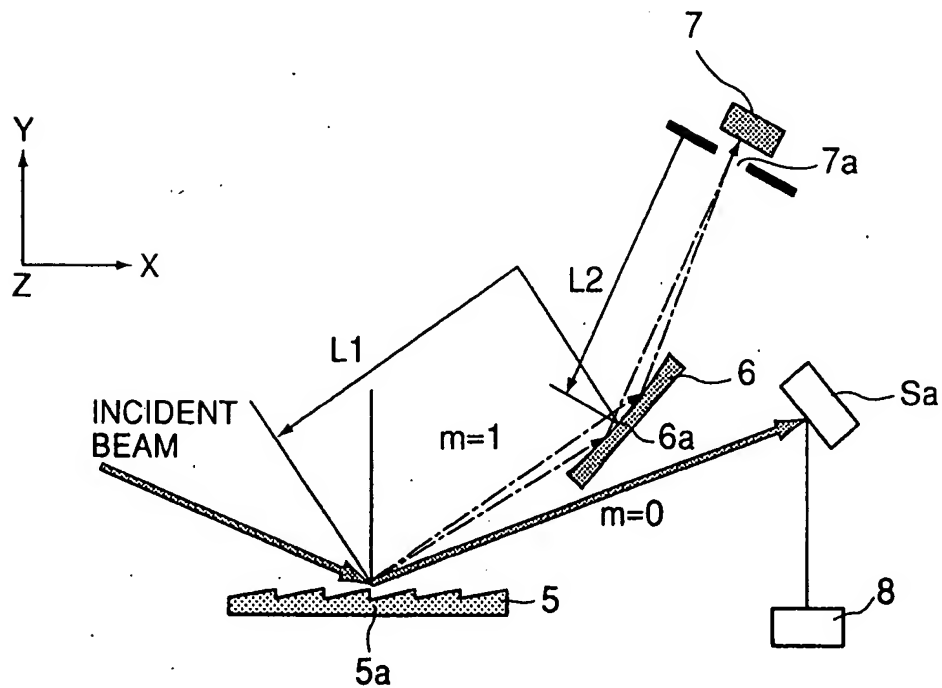


FIG. 2